

CLAIMS

1. An optical semiconductor package for packaging therein an optical semiconductor element, comprising:
 - a stem with a hole;
 - 5 a dielectric sealed into the hole of the stem, and with a pair of pin insertion holes; and
 - a pair of high frequency signal pins that penetrate through and fit into the pair of pin insertion holes of the dielectric, and that constitute differential lines electrically connected to the optical semiconductor
 - 10 element.
2. The optical semiconductor package according to claim 1, wherein the dielectric is glass.
- 15 3. The optical semiconductor package according to claim 1, wherein the stem includes
 - a first member arranged on an outside of the dielectric, wherein a coefficient of thermal expansion of the first member is substantially equal to a coefficient of thermal expansion of the dielectric; and
 - 20 a second member arranged on an outside of the first member, wherein a thermal conduction of the second member is higher than that of the first member.
4. The optical semiconductor package according to claim 1,
- 25 wherein the dielectric is transparent or semitransparent.

5. The optical semiconductor package according to claim 1, wherein the hole in the stem has one of an oval shape, an elliptic shape, and a cocoon shape.

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6. The optical semiconductor package according to claim 1, wherein a ground member in parallel to the pair of high frequency signal pins is provided on the stem.

10 7. The optical semiconductor package according to claim 6, wherein the ground member is a pair of ground pins, and the pair of ground pins are provided on outer sides of the pair of high frequency signal pins, respectively, so as to put the pair of high frequency signal pins between the pair of ground pins.

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8. The optical semiconductor package according to claim 1, wherein the optical semiconductor element is a semiconductor laser diode including a pair of electrodes, and the optical semiconductor package further comprising:

20 a differential line substrate having a one end side connected to the pair of high frequency signal pins, and an other end side connected to the pair of electrodes of the optical semiconductor element;

a pair of inductance elements having one end sides connected to the pair of electrodes of the optical semiconductor element,

25 respectively, and having other end sides connected to an external bias

current source.

9. The optical semiconductor package according to claim 8,
wherein stubs are formed on the pair of differential lines on the
5 differential line substrate, respectively.

10. The optical semiconductor package according to claim 9,
wherein the stubs are formed to protrude in a direction in which the
respective differential lines are closer to each other.

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11. The optical semiconductor package according to claim 1, further
comprising a cap that includes a light passing hole, and that airtight
closes an internal space including the optical semiconductor element by
fixing an end portion to the stem.

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12. An optical semiconductor package that contains an optical
semiconductor element and an integrated circuit which transmits and
receives differential signals to and from the optical semiconductor
element, the optical semiconductor package comprising:

20 a dielectric sealed into and fixed to a wall surface of the
package, and having a pair of pin insertion holes; and

a pair of signal pins that penetrate through and fit into the pair of
pin insertion hole, and constituting differential lines, wherein

25 differential signals are transmitted and received to and from the
integrated circuit through the pair of signal pins.